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Shelton, F. H.

MORE LIGHT ON THE OLD MILL
AT NEWPORT.

UNIVERSITY OF MARYLAND

More Light on the Old Mill at Newport



R. H. BRETTON

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THE OLD STONE MILL AT NEWPORT, R. I.

More Light on The Old Mill at Newport

BY

F. H. SHELTON

Of the scores of thousands of old-time windmills that have been erected, the Inigo Jones mill at Chesterton, Warwick County, England, is perhaps of the greatest total interest, for it not alone reflects the general interest attaching to these old-time structures but has features attaching to no other windmill. It is unique in being the most ornate in the world and the only mill, probably, that was ever designed by an architect of great note. It is of interest in having been erected at the command of a family of unusual wealth and position—than which in its time there was perhaps none more prominent in all England, but which family is now so completely obliterated that naught but records and traditions exist, to attest its former fame; or the magnificence of the family mansion,—that was demolished utterly, a century ago. Technically, it differs from other windmills in the use of certain mechanism not elsewhere used at that time; and finally, this windmill is of particular interest to the American historian as offering the most likely solution to the riddle which for a number of decades was a fruitful source of controversy to American antiquarians; namely, the identity of the builders of “the old stone mill” in Newport, Rhode Island.

Having been interested for a number of years in the study of old-fashioned windmills and being in England in the summer of 1910, I journeyed to Warwickshire for the express purpose of seeing this old Chesterton mill. My interest was keen to not only take some photographs of it but secure as well the measurements and details of its structure, that I had quite failed to find in all references to it. I particularly desired to examine the interior and the machinery, concerning which there seems to have been heretofore a total lack of information. I believe that this is the first time that the entire detail of the mill has been secured and made public.

Chesterton is an old parish about four and a half miles south of Leamington and about ten miles east of Stratford-on-Avon and the first trip to it,—of rather an exploratory nature,—was in a modern taxicab, in delicious contrast to the almost mediaeval structure of which I was in quest. Good roads led to a point near the windmill and I had at last the satisfaction of finding that it still existed—which had been an open question—and of having it before my eyes. It was closed and barred and after taking several views with my camera, I retired to devise strategic ways and means to get inside.

I ascertained that the mill was on the lands and is the property of the present Lord Willoughby de Broke, who individually I scarcely expected to have to reach, trusting that a caretaker could be found who would afford me entrance. Mr. Gilbert H. Spicer, secretary of the local antiquarian society, and an all-around interesting, able and co-operative individual, kindly gave me a letter of introduction to a brewer some miles out, who, upon duly seeking, in turn gave me a letter to the farmer living on the lands, who had the custody of the mill. So in due course, I re-journeyed to the mill and after some rappings and circumnavigation of the farm house, managed to awaken,—I believe from an afternoon nap,—a middle-aged female who advised me that the men were away and that she did not know where the key of the mill was. It was tolerably plain to be seen that I could not get the desired access from her and, further, I gathered that my general vacating of the premises would blend with her preferences. Disappointed, but not vanquished, I retreated to re-gather my forces, having first ascertained that there was no apparent way to get into the structure, the old oaken door having no “give,” the windows being inaccessible and breaking and entering not being within my customary methods.

I concluded that early Sunday morning should logically be a time in which the men would be home and that if persuasion, shillings or other arguments could prove effective, the key would be forthcoming. So on the succeeding Sunday, August 28th, 1910, I, for the third time,

went the four and a half mile journey; this time afoot, enjoying the tramp, yet revolving in mind what I should do if still put to it. This time I found not a soul of any sort around the farmhouse. Proceeding to the mill, perhaps a thousand feet away, I faintly hoped that the key to the old iron lock had perhaps been tucked away for convenience sake in some crevice. Search, however, failed to disclose it. I finally discovered a small opening, covered by an unfastened trap door not before noticed, at the level of the first wooden floor near the head of the stairs, which opening measured perhaps 14" x 18" and concluded that if that was the sole point of entrance, it yet had to be! Being of stature six feet and of reasonably good weight and with but little to push against and the inside being encumbered with a complication of timbers, shafts and litter, entrance through this aperture, was at distinct expense to both body and gray matter. I admit that in the midst of the operation, the tale of the snake recurred to me; that having swallowed a rabbit—as yet undigested—and having started to go through a hole in a stone wall, was stopped half way by the bulge caused by the aforesaid rabbit and then—with the front half of his body swinging in space on the other side of the fence—succumbed to the temptation of a *second* rabbit which incautiously passed within reach and swallowed it; with the result that his snakeship could then neither go forward nor backward! Seriously speaking, while able to squeeze in, I question very much whether I could have gotten out by the same hole. An adventure is without zest, however, if the ways are easy and, in this case, I felt that I could at least emerge through the roof and slide down one of the sweeps and drop off. However, from the inside, I found it easy to spring the door lock slightly with a screw driver, that I found inside, apparently of antiquity coeval with the mill, so that upon leaving, I was able to say that, while having doubtless committed trespass, I at least was not liable for breaking and entering. This Sunday morning, however, the country side was deserted as far as the eye could reach and I spent some two hours wholly undisturbed in sketching and measuring the old structure and machinery. My conquest was complete!

The mill stands on what is locally known as Windmill Hill in a commanding position in a large open field overlooking many miles of open rolling, moderately hilly country, so sparsely settled that the parish population is given at only 150. It is on a raised dais or platform about 80 feet in diameter and some 4 feet above the general ground level, which platform is formed by a low circular stone retaining wall, and which—with fencing as well—prevents cattle or teams from walking within reach of the revolving sweeps. There is not a single tree or

bush anywhere near to interfere with the view, either of the mill or from it and access to it is easy as the road is but a few hundred feet away. The mill was erected in 1632 by Sir Edward Peyto as shown by the date and initials "16 E x P 32" appearing in lead work under the overhanging roof, over the leaded glass sashes of the dormer window in the rear. According to Ripton-Turner's "Shakespeare's Land" it occupies the site of an earlier wooden mill.

Sir Edward Peyto was one of a fine old family that owned lands in Warwickshire county for many centuries (1278 to 1802) and in his day apparently spent large sums in the building or expanding of an estate that must have been one of the finest in England. The mansion no longer exists, only the difference in vegetation where the grass grows less well in dry seasons over the foundations, indicating the lines of the original structures, so complete was the demolition when torn down in 1802. An old stone water mill, and a stone bridge across a waterway, with carved detail of a superior order are the only other yet remaining ear-marks of the character of the estate in the past, aside from the windmill. It is evident that the architecture of all of the structures was put in the hands of a man of ability, and we know that was so; no less a one than Inigo Jones. Sir Edward Peyto, who died eleven years after the building of the windmill, was buried in the old Chesterton Church on Chesterton Green, perhaps a third of a mile away, and recumbent monuments and the wall tablets of the family are unusually fine and of great interest. The local county directory after giving a summary of the parish and the Peyto family so indissolubly associated with the old mill, remarks:

"Here was seated, for successive ages, the rich and powerful family of de Pictavia or Peto who are first noticed by Dugdale, as possessors of land at Drayton, near Stratford-on-Avon, in 6th Edward I; the estate of Chesterton came to them by marriage in Edward III's reign, where they built a fine manor house, subsequently added to by Sir Edward Peto, from designs of Inigo Jones, but the whole structure was demolished in 1802 by John Peyto or Peto, 14th Lord Willoughby de Broke, who inherited this estate through his maternal ancestors. Lord Willoughby de Broke is the lord of the manor and chief landowner."

While upwards of 300 years old the mill is in a good state of preservation. Although numerous individual stones are much weather worn, as a whole it is almost as good as it ever was. It is built of a local gray stone, accurately cut and dressed, with water table, mouldings, skewbacks, keystones, window trims, cornices, arch-work, etc., equal to the work of any cathedral, and its unique design of arcaded support, that is the mill being carried on six square pillars or columns,

with connecting arches—unusual, yet slightly, substantial and satisfying in effect—stamps it as manifestly the work of a master hand.

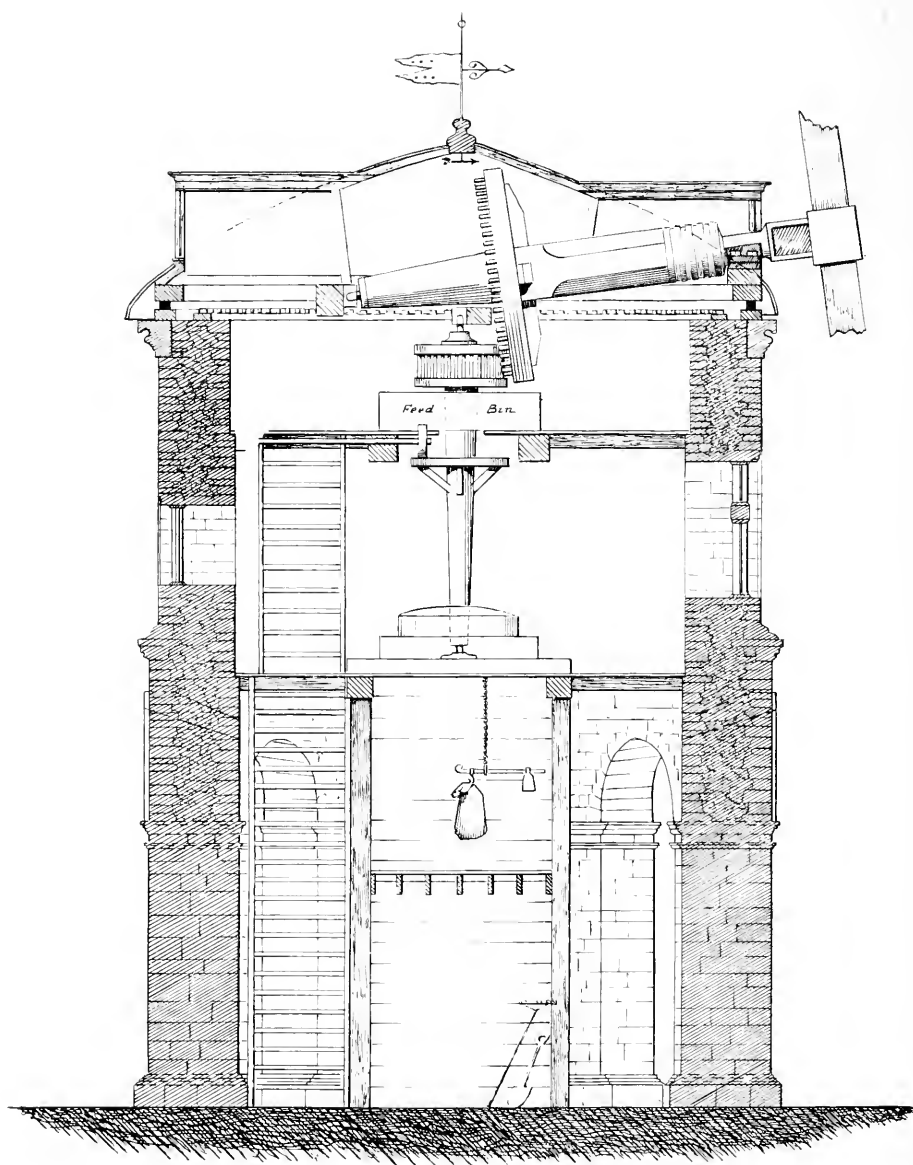
It is credited explicitly to Inigo Jones, although perhaps not so much on direct record as by deduction, he having added to the mansion, and the mill being of such a character that it could hardly have been designed by an ordinary millwright. A search of several principal works, such as "The Designs of Inigo Jones" by W. Kent, 1727, "Designs of Inigo Jones and Others" by I. Ware, 1757, and Dallaways Edition of Walpoles "Anecdotes of Painting," examined in the Library of the British Museum, disclosed no reference to this structure. "Some Architectural Works of Inigo Jones" however, by Triggs and Tanner, 1901—a biography and review of his principal works—gives a sketch of the windmill, lists it as his and makes the following reference to it on page 26:

"This small building is an example of the good effect that can be obtained by quite simple methods in the hands of a master. Though the ground floor arcade, circular in plan, might be criticized by some, the whole effect is very charming.

"For miles around, the mill is a notable landmark, standing as it does, on the summit of a high hill without a tree or a shrub anywhere near it. The shell is built of stone, with a flat, domical roof of lead, and the mouldings are good and have weathered well in spite of the exposed position. The jointing of the archivolt of the arcade is noticeable, as the stones are shouldered back into the plain face of the wall. Inside the stone shell are the ordinary arrangements of a mill with a wooden stair leading up to the first floor."

Inigo Jones was one of the noted men of his time, an architect of celebrity, in the history of architecture of England, was a favorite at Court, was involved in cabals and intrigue and died in poverty. In conjunction with the history of the old mill, a brief account of his life is of interest and such may be found in the 6th edition of the "Encyclopedia Britannica" published in 1823 and elsewhere.

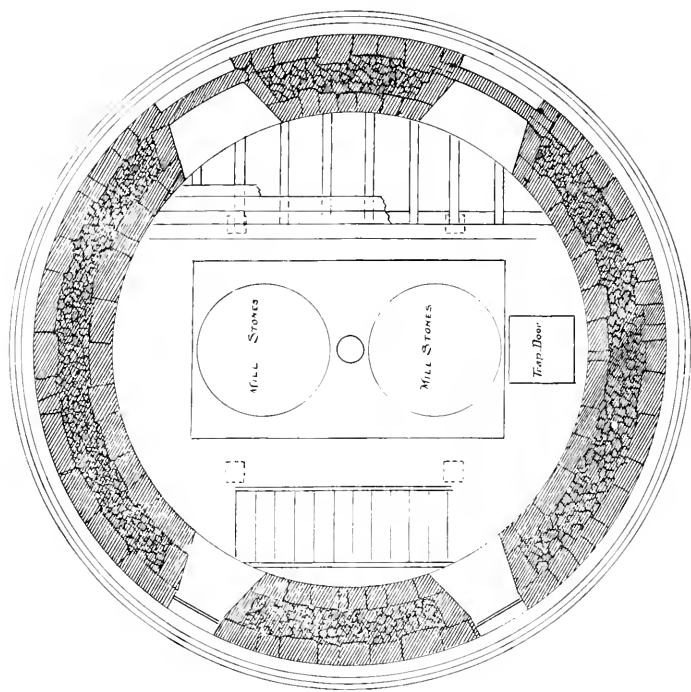
The mill is 29 feet in height from foundation level to the top of the masonry work; is about 23 feet in diameter to the outside face of the pillars; 16' 4" inside; 22' outside the body of the mill above; 16' 6" inside of the first floor and 16' 8" inside of the second floor. The walls are 34", 33" and 32" thick at the lower, middle and upper levels respectively. The pillars are 40" in thickness, 48" on the outer circular face, 33" on the inner face and the clearance between is 5' 9". This latter space is not sufficient for driving a cart under the mill as has been supposed was perhaps done for convenience in receiving grain. In any event this was not feasible because of a rectangular boarded, wood structure 8' x 8' 6" square, inside the columns, extending from the



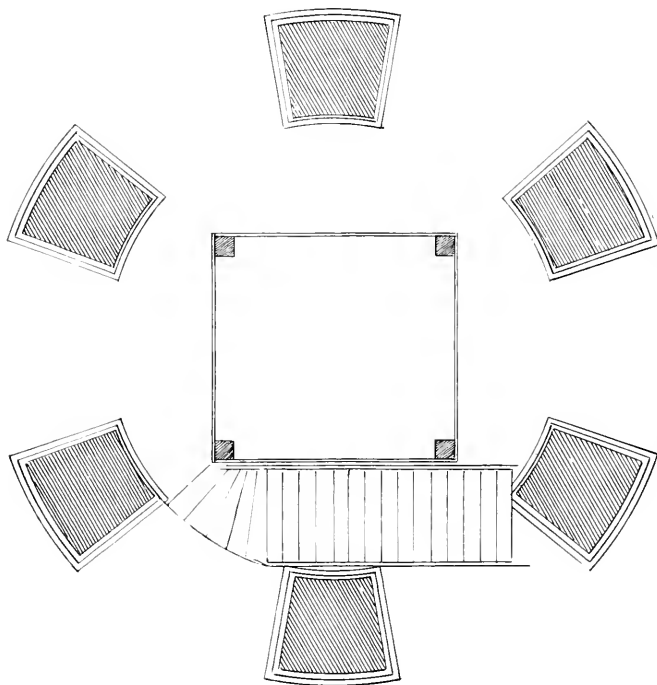
CHESTERTON MILL
Vertical Section Through Columns

ground to the first floor above, divided into two eight foot levels; the lower space being used for storage of farm tools or horse feed, while the upper space is used for sacking the ground grain or flour and weighing, a steelyard hanging there. Further, a flight of ordinary oak steps for access to the first floor from the ground level, is located between this wood room and the columns on one side. It is somewhat unfortunate that these wooden structures are there as they obstruct the open view and largely spoil the effect through the arches between the six columns. All of the walls within reach, are covered with innumerable dates, names and inscriptions, scratched and scribbled by visitors of two centuries. It is 10' 6" from the foundation level to the top of the pillar caps; 16' from the foundation to the first floor; 8' 10" from the first to the second floor and 4' 2" from that level to the top of the wall, upon which the revolving roof or head rests, and about 10' 6" from the upper floor to the under side of the highest part of the roof. The first floor is supported by two 9" x 11" oak summer or girder timbers, carrying light oak joists 3½" x 5" x 18" centers. This floor carries the weight of the mill stones but it is reinforced by the four vertical 8" x 8" timbers forming the corners of the wood structure below, previously referred to. The upper floor is supported by two similar timbers 12" x 14"—not reinforced—with the same smaller joists. Both floors are covered with usual 1" boards. A small wooden stairway of 14 steps connects the two.

The windows are unusual in not being of uniform size, there being on the west side, two large windows 33" above the floor, with splayed jambs, the openings in the wall on the inside being 46" wide by 60" high each, and two small splayed windows (with 35" x 34" opening) opposite, 39" above the floor on the east side. It is rather remarkable, with the entire structure in almost every other way characterized by symmetry, that the windows should be of uneven size and not equally spaced. The casement sash are of leaded glass with small rectangular lights and seem to be the originals and veritable antiques. On the outside surface of the wall there is a sunk or recessed moulded trim around each window. The face of the wall is of ashlar, that is a cut and dressed stone veneer very true and smooth, each course being of uniform width around the building, though varying from 2½ to 6" in height. The stone column blocks are likewise of varying widths, but heavier, the thickest being about 16". The mouldings and cornice at every point are of most correct and careful design and the stones forming the arches between the columns show particularly fine workmanship, as these arches being curved as well as radial have the lines of a cone and, having continuous voussoirs or arch stones from front to back, involved a care in design and in shaping and fitting, found only in the very



CHESTERTON MILL
First Floor Plan



CHESTERTON MILL
Ground Plan

highest class of work. The arch stones project 2" and there are nineteen in each arch.

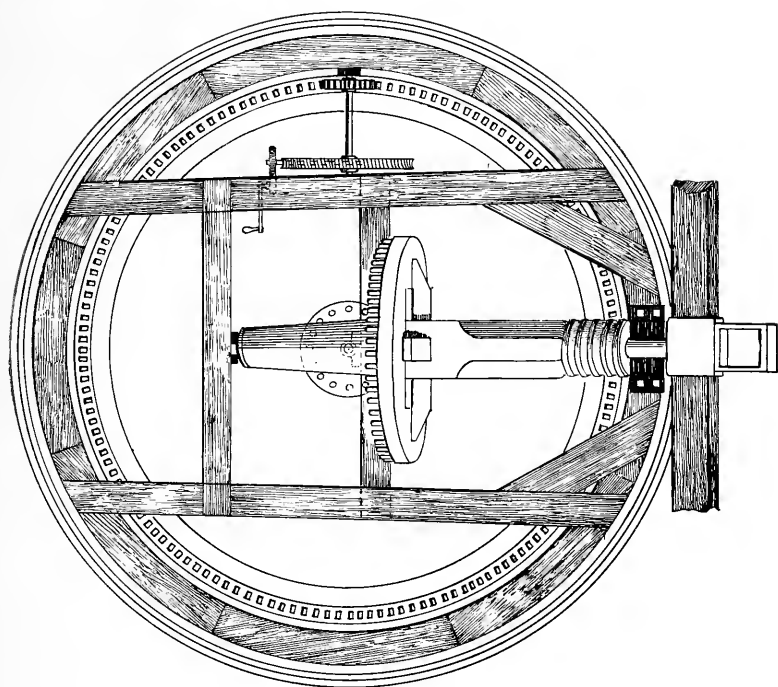
The top of the circular tower carries a fixed curb 7" high, upon which run rollers equally spaced, about 5' 9" apart, carrying the movable wood mill head or roof. This head or cap is of a flattened oval or dome shape and is formed by six radial curved oak rafters about 4" x 4" supplemented by lighter intermediate rafters. They are supported at the outer end on a main circular curb, 7" x 13", are braced midway by short stud posts and in the center unite at a king block, the whole being covered with light roofing boards, sprung to form. This oak roof or dome is apparently the original roof, is truly shaped and fitted, an excellent instance of the carpenter's art and is in a very good state of preservation. It is covered externally by sheet lead about $\frac{1}{4}$ " thick in the fashion of the old cathedrals, the sheets being radial with a projecting rib between each where the joint occurs, the ribs being about 21" centers at the outer edge of the roof. From above it must present the appearance of a huge melon. In the rear is a dormer window, 31" high by 62" wide, with three sash, affording light to the upper floor, this dormer with curved roof, being lead covered as well. A generally similar, though narrower dormer without sash, in the front, is used for housing the great shaft or axle of the wind wheel. The top is surmounted by a small metal weather vane of quaint early design, so arranged that its position, and hence any change in the direction of the wind, is—by an arrow—indicated inside as well, to the miller. The roof is about 24' diameter, extends down to the stone walls overhanging about a foot and overlapping the cornice so that storm cannot drive in. The chief evidence of age in the mill is in a few places around the edge of the roof where it has buckled or sagged.

From the point of view of the windmill millwright, the mill machinery in the main is of usual form. The arms or sweeps, carried on whips perhaps 35' each in length and 10" x 16" at the butt, mounted in a cast axle head,—are of the old primitive lattice type with canvas sails, common throughout England and the continent. The "patent shutter sweeps" invented later were evidently never substituted. The great shaft, of wood, is 24" in diameter and octagonal in form. Its upward angle is moderate, being about five degrees. It is fitted with a 9" cast axle neck or bearing, without cap, in the front end, secured by five wrought iron bands and with a gudgeon pin bearing at the rear end. It is carried on the usual, intersecting cross timbers attached to and stiffening the main circular wooden live curb, which is 7" x 13". The great cog or driving wheel is of the old, wood, built up construction, about 8' diameter and 9" thick, fitted with wood teeth inserted,

wedged and replaced when worn as need be and is encircled with the usual wrought iron brake band, lined with wood friction blocks $1\frac{1}{2}$ " thick. This great wheel drives a lantern wheel or wallower some 40" diameter mounted on the upper end of a 14" king post and this serving as a vertical central shaft, drives by suitable gearing, at its lower end, two pairs of 54" mill stones of usual character on the first floor. The grain is hoisted from the ground level through trap doors about 28" square, is fed from a bin in the upper floor to the stones, is ground on the first floor and the resulting flour is bagged and weighed in the space beneath, as shown in drawing.

The mechanism for rotating the head of the mill, however, in order to bring the sails into the wind, is entirely different from that usually found at that time. The architectural design adopted by Inigo Jones, to make a mill out of the ordinary in appearance, suitable for the estate of his wealthy patron, doubtless precluded in his eyes, the use of the ordinary projecting timber tiller, of homely and crude appearance. As a substitute there was used an internal gearing operated by crank and pinion. While such method was used in Holland and in the American colonies, a century later, this is the only instance that I have found of its use as early as 1632. In this respect, this part of the mechanism of the mill was extremely unusual. In the device in question a hand crank operates an iron pinion geared to a cog wheel, the diameters being about 5 to 11. This in turn operates an iron worm gear in the ratio of 1 to 65 and this in turn operates an iron wheel of 16" pitch diameter, having 12 teeth, engaging with the final circular cog rack of about 160 large wooden teeth mounted on top of the mill wall concentric to and within the track carrying the truckles or roof supporting rollers. The gears are crude and friction great, and the roof and timbers are so heavy that it is no easy job to move the head, as my personal trial showed.

There were signs of the mill having been in operation comparatively recently, the canvas sails being in place, furled, and repairs of some of the teeth and operating parts of the machinery being under way, as evidenced by chips and carpenters tools. I believe that occasionally the mill is used for reasons of both sentiment and convenience in grinding grain from the estate. Although now 285 years old, it appears good for some centuries to come and standing as it does, a little above the general level, on the crest of the hill, and protected by the surrounding fence and bank wall from cattle and vehicles, as well as by the sentiment that must attach to it, there is every likelihood of its continuing in stately dignity, an historic land mark for miles, for a long period to come.



CHESTERTON MILL
Top Floor and Revolving Head Plan

Let us now consider the probable relation of this Chesterton mill to the old stone mill at Newport, R. I.

The circular stone tower standing in Touro Park, (and known to all students of American history, as one of the oldest, if not quite, the oldest existing relic in the country) through a large portion of the last century, aroused a great amount of discussion as to its origin. From the settlement of Rhode Island in 1638 and during a century and a half thereafter, it was apparently locally known as the "Old Stone Mill" by the early inhabitants and as what follows below may show, I believe properly. It was regarded as the remains of a windmill erected by the early Colonists, in the 17th century. It was reported according to tradition, to have had the usual floor and circular roof of such structure. Its operation was laborious "requiring oxen to turn it" to the wind. The street leading to it was known as Mill St., etc., etc. In 1840, however, Prof. Rafn of the Northern Society of Antiquarians, Copenhagen, in an elaborate paper upon the history of Norsemen in America (who were admitted to have landed and to have occupied Greenland and other north-eastern shores some 600 years before the English colonists settled in Rhode Island) contended that this old mill tower was a circular edifice or baptistry, erected by these Norsemen in the 11th century. This radical, romantic and interesting theory, supported as it was by ingenious surmise and capable argument, found a number of adherents and for perhaps two generations through the past century, controversy waxed and waned as to the probable facts. The opposition contended that the structure was erected in 1675 by Governor Benedict Arnold, as a windmill pure and simple.

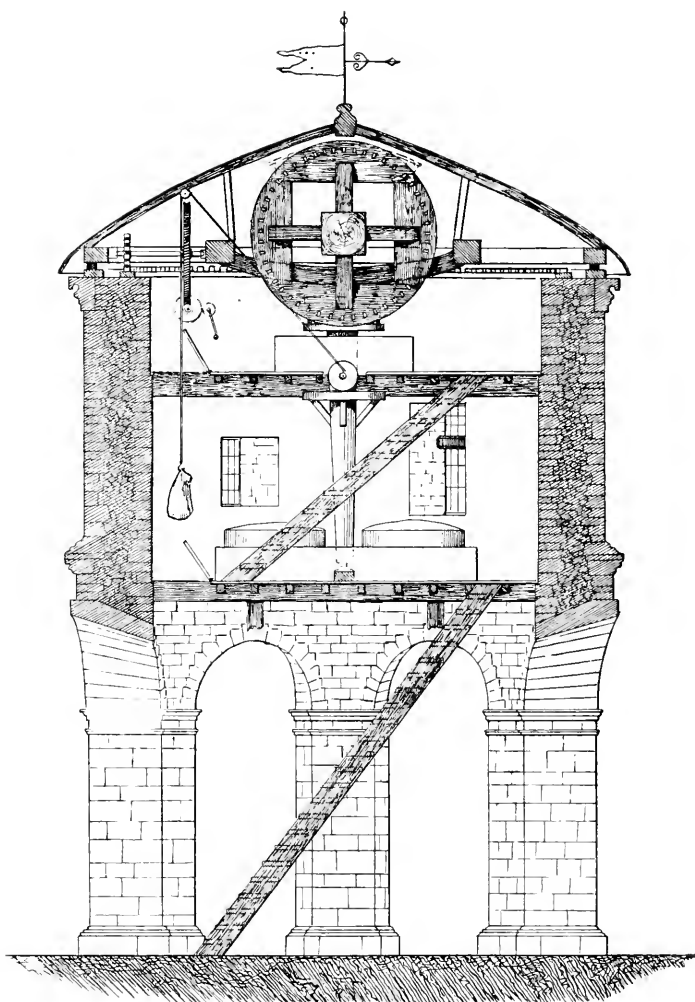
The discussion at large led to the suggestion of various other theories, some of them fantastically improbable, as for instance the following which appeared in the editorial columns of *Scientific American*, November 27th, 1845; seventy one years ago.

"We shall dismiss the subject with the simple conjecture that it is a fabric of remote antiquity, intended for a temple of Pagan worship, and erected by the process of heaping up earth around the building as it progressed; thus furnishing facilities for elevating the stones, as has been practised by the Chinese and other nations: but that the Sachem builders having died or failed before the building was complete, the earth was left around the edifice, till becoming overgrown with trees, the building was so far concealed from view as not to attract the notice of the English settlers, until the land, being cleared, was gradually washed away by storms of rain, which, by a process too slow to induce remark, eventually brought the whole fabric to view from its foundation."

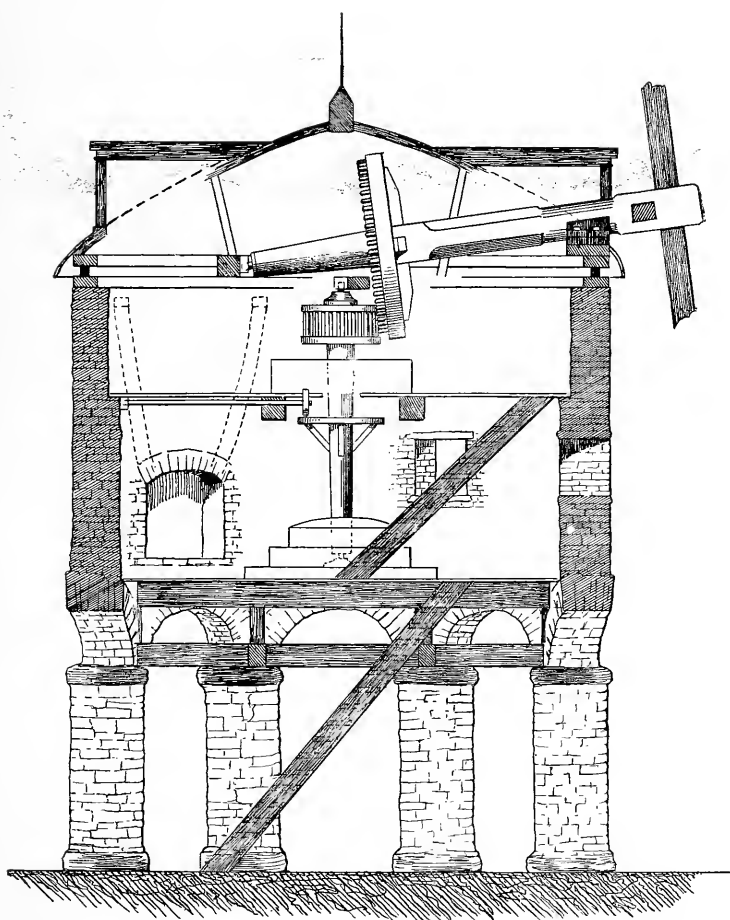
Prof. Rafn's original paper (and according to Justin Winsor in his

"Narrative History of United States," Rafn was the first to assert the Norse theory) may be found as a supplement with plates in his "Antiquitates Americana" (1840) to be found in the older libraries. The best and most interesting argument in the same line—that is the Norse theory—of comparatively recent times, is that of R. G. Hatfield "The Old Mill at Newport" appearing in Scribners Monthly for March, 1879. Most of the arguments upholding the opposite or windmill theory are included in a small verbose pamphlet of 91 pages by the Rev. Charles T. Brooks of Newport (1851) entitled "The Controversy Touching the Old Stone Mill in the Town of Newport," copies of which may be found in the libraries of the Historical Society of Newport, the Historical Society of Pennsylvania, the Lenox Library of New York, etc. The best recent article confirming the windmill theory is that of George C. Mason, Jr. entitled "The Old Stone Mill at Newport" appearing in the magazine of American History (1879) and also later as a chapter of his "Reminiscences of Newport." It is the purpose of this present article to further confirm the windmill theory by a showing of the detail and the similarity of the Chesterton and Newport structures in greater fullness than heretofore. References to the subject also appear in Higginson's "Larger History of the United States"; Peterson's "Rhode Island"; Gay's "Popular History of the United States"; Palfrey's "New England"; Schoolcrafts "Indian Tribes" Vol. 4; Lossings "Field Book of the Revolution"; Bishops "American Influences"; "Science"; December 5th, 1884; "Scientific American," November 27, 1845; Drakes "Nooks and Corners of the New England Coast," etc., etc.

The argument of Prof. Rafn and of Hatfield and their followers was based on the general ground of a claimed similarity of the Newport round tower to a number of round religious edifices that are cited the world over and to the crude architecture of the arches and columns being more "Norman" than anything else. Analogy is not only depended upon throughout but is about the chief argument that can be used for the reason that there is nothing else—nothing whatever of any tangible or definite nature—that can be pointed to, excavations from time to time having quite failed to reveal the slightest physical or material evidence of adjacent church or other structures and no documentary records ever being found to bear out the religious theory. It was admitted by the Norse theorists that at one time the tower was owned by Benedict Arnold, the then governor of the colony and was then a windmill but it is contended that it was converted into a mill from its previous religious form. It is asserted that the fire-place and flues and floors and existing windows were added later and that especially—in relation to its similarity to the Chesterton mill—that it was not a copy



CHESTERTON MILL.
VERTICAL SECTION: BETWEEN COLUMNS.



NEWPORT MILL : RESTORED.
VERTICAL SECTION.

because of having eight columns instead of six ; because of being of very rough construction instead of finished ; because of being of the claimed style of the 10th century in place of the 17th century and because the rough columns at Newport are somewhat offset instead of being directly under the finished circular wall above as at Chesterton. Also that this open arch structure was not a windmill form ; that a fireplace was not a windmill feature and that the wall openings for flooring timbers, etc., were later modifications.

The argument of the windmill believers is that the early colonists made special note of all local and unusual objects and that it is impossible to conceive of such a structure built by previous races already existing there upon their advent without any note or reference being made to it ; that as to the baptistry theory, the fact that a small building or structure was circular does not make it follow that its use could *only* be that of a baptistry—usually circular—but that its use might be that of *any* building of circular form ; that while the pillars and arches form of support in question is a very unusual one for a windmill tower, there is at least one windmill of exactly the same style, viz. the Chesterton mill, and which windmill—because of the history of the Arnold family—was specifically the model for the Newport mil' ; that the arches offsetted from or projecting, a little beyond the line of the wall above for the claimed purpose of supporting the roof timbers of a circular baptistry aisle or "leanto" surrounding the tower proper, are not necessarily for such purpose at all, and that the fact of there being no foundations revealed at any time around the outer circumference refutes the "leanto" theory ; that the columns being somewhat off center, was simply to obtain a flush vertical interior and to enable the easier construction of straight arches, with the crude facilities available ; that a baptistry of some 36' in height (as "restored" by Hatfield) would involve the supposition of some 10 or 12' of the original tower having fallen away ; a theory which is not borne out by the extreme tenacity of the present structure, apparently unchanged in form and height for two centuries and that if the original tower had been of that height, and had been converted to windmill purposes, such greater height would have been a pronounced advantage and reducing the height would have been the very last thing that would have been done. These are all general arguments also by analogy, against the baptistry theory. More positive arguments, however, in favor of the windmill theory were based upon these definite points :

It is known that Benedict Arnold (the great-grandfather of Benedict Arnold, the traitor) was born in Leamington, England, in 1615; that he emigrated to Rhode Island in 1635; that in course of time he

became governor of the colony—in 1663—but was not popular either with certain of the colonists or with the Indians; that according to the diary of Peter Easton, the first windmill, a wooden structure, was erected in 1663; and that in August 1675, this windmill was blown down in a great storm. It is held that Arnold, as governor, had the responsibility of seeing to it that means existed for grinding the grain, essential to sustenance; that either upon the wrecking of the wood mill he immediately built the stone mill, or else for greater capacity or for other reasons, built the same sometime between the time of the erection of the first wood mill (in 1663) and 1678, in which year he died, making several references in his will to his stone built windmill. The fact of his birth and bringing up in the vicinity of the Chesterton mill near Leamington, first above described, is taken as the *direct* reason for the unusual form of the Newport stone mill, that is, being on columns and arches instead of the usual cylindrical solid tower. When the Chesterton mill was finished in 1632 and the keg of old ale was opened and the flag raising occurred in connection with this ornate and unusual structure—if such custom or its equivalent then existed—it is argued that this ornate mill must have made a distinct impression upon the mind of young Arnold, then 17, who indeed may have as a lad been engaged in actual work upon this Chesterton mill and certainly was familiar with it as one of the conspicuous Peyto edifices and a local landmark. Forty-three years later Arnold was a man of mature years, of unusual individuality and pre-eminent among his fellows, and it is not only perfectly conceivable, but likely and natural that, upon being called upon to construct for the colonists a more enduring mill than the one that had just failed, and actuated by both sentiment and practicability, that he should endeavor to build, despite 3,000 miles of separation and many years of absence, a mill as much as he could, like the old one at Chesterton. And while quite bearing in mind its general form and arrangement, it is entirely probable that he could neither remember the precise dimensions nor well secure the same within the time in which the new mill was needed and that he had to trust to memory, not only for the dimensions and general proportions, but perhaps even as to the number of columns that were used. This would easily account for the mill being a little greater diameter and a few feet shorter than the Chesterton mill and having eight columns instead of six. In fact the latter variation might have been purposely made as making the easier arch construction; one more within the capabilities of the colonists. As a matter of fact, according to Mason, the Newport arches are straight from column to column, forming an octagon at that portion, while the build-



THE "INIGO JONES" STONE MILL.
Chesterton, near Leamington, England



NEWPORT MILL RESTORED

ing being circular above, overhangs the arches a few inches, this arrangement forming the easiest construction

It has been suggested that the use of the arch form was in part to diminish the backlash of the wind found on the usual windmill towers, the open arches easing the air current below and diminishing the eddies. I do not believe, however, that this is other than an ingenious theory, but rather that Inigo Jones selected the open arch design purely for architectural effect and that the similar Newport design was because Arnold from memory copied the mill with which he was most familiar, most admired and thought to be of the best form. The argument has further been advanced that this stone structure with its appearance of strength and actual elevation above the ground, would form—on block house lines—a vantage point of defense, if need be, or at least so impress the unfriendly Indians. In regard to the fireplace, it is an unknown feature, it is true, in mills in England, the climate not requiring such, but it is evident that the colonists would require but little stay in Rhode Island to find that the climate there, especially in winter, on the bleak tops of some of the exposed sea coast islands, was very different indeed from the climate to which they had been accustomed. And in constructing this windmill, the addition of a fireplace for comfort, would be but a practical evidence of hard sense. In Penna it is hard to find an early colonial grist water mill, *without* a fireplace. The flues of this fireplace, instead of discharging upward, turn and discharge sideways, about 10" below the top of the tower wall, which would be exactly the necessary construction, to avoid interference with the curb rollers of the movable windmill head, which would rest on top of the walls. It may further be noted that the plaster with which the mill was built, upon analysis, showed the same as the plaster used in nearby colonial houses known to have been built at the same period.

In dimensions, the Newport structure is 24' 8" in diameter to the outside of the columns. The average inside diameter between opposite columns and the lower portion of the wall is 18' 9"; of the upper wall, about 19' 9". The columns themselves are round, of 38 to 40" diameter, and rest on bases about 3' 10" in diameter. Their height is 8' to 8' 8" from ground level to the top of the cap, a single large roughly rounded stone. The height to the under side of the opening of the arches is about 11' 2". The fireplace hearth level is 13' 5" above the ground and was probably a foot or so above the first floor level, which floor was built upon and carried by four heavy beams, arranged in two intersecting pairs, which beams rested in holes in the wall immediately over each column, and between the arches. The

second floor level is 20' 2" above the ground. The height to the top of the wall is 25'. The fireplace is 3' 5" wide by 4' high; the south window is 2' 2" wide and 2' 5½" high outside; the west window is 2' 2" wide. In being unevenly spaced and not symmetrical with the arches below, they precisely follow, in that respect, the Chesterton mill. The windows are placed about 16' above the ground and on the less exposed sides, further indicating occupancy of the building by a presumable attendant miller, requiring weather protection and heat, for with accumulated grain it was the custom to operate day and night when a fair wind should become available. In a very old mill in Paris on Montmartre, there was even a bunk provided so that the miller and his helper might alternate in snatches of sleep during continuous work. The mill at Newport is laid up in coarse rubble of local laminated slate or graywacke, mixed with gneiss. For many years it was covered with vines, but to prevent the destroying action of the tendrils, they were removed about 1880.

The windmill theory as summarized above, is strongly reinforced by Mr. Mason's study of the Newport structure in 1878 in which he was satisfied, after close scrutiny of the details and parts, that the fireplaces and flues, the floor openings and the windows were most unlikely and in fact practically impossible to have been added as later modifications; that they were almost certainly a part of the original structure and therefore obviously and totally conflicted with the baptistry theory. At the present day I think most historians and antiquarians have dropped the Norse theory and look upon the windmill theory as having been long and sufficiently well established. While I am neither a historian nor architect, I have especial knowledge as to windmill structures of the old type and I believe that the similarity, not only of the general containing structures, but of the floor arrangements, the floor levels, the stairways and contained machinery (assuming the Newport mill restored, and equipped as shown in drawings attached) is so obvious as to be completely convincing and that it needs but a glance at the drawings side by side to be satisfied that the Chesterton mill, (in conjunction with the Arnold history and circumstances related,) was the prototype and model of the Newport mill.

First built and used about 1675 as a windmill, by Benedict Arnold, the first Governor of the colony of Rhode Island, the Newport mill fell into disuse in the 18th century, was later used as a powder house and again for hay storage and now, tradition laden, protected and revered, it has finally become Rhode Island's most treasured relic; and taken with the Chesterton mill, the two form the most unique and historically interesting pair of windmills ever built!



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